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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/782,858

Applicant(s)

KIM ET AL.

Examiner

HABTE MERED

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/2/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The after final amendment filed on 4/02/2008 has been entered and fully considered.
2. Claims 1-11 are pending. Claims 1 and 5 are the base independent claims.
3. Applicant's arguments, in the Remarks in the After Final Amendment filed on 4/02/2008, with respect to claims 1 and 5 have been fully considered and are persuasive. The 102(e) rejection of independent claims 1 and 5 has been withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 5-11** are rejected under 35 U.S.C. 102(e) as being anticipated by Prakash et al (Ravi Prakash, Sanket Nesargi, "MANETconf:Configuration of Hosts in a Mobile Ad Hoc Network", IEEE, 2002).

Regarding **claim 5**, Prakash'IEEE discloses a method of allocating an Internet Protocol (IP) address and detecting duplication of the IP address in a network environment (See Page 1059, 1st column, Section 1, 1st paragraph – Prakash'IEEE **system strictly involves a mobile ad hoc network also referred to as MANET**), comprising the steps: (a) initially allocating a tentative IP address to a terminal

(Prakash'IEEE discloses on page 1060 in Section A the ZeroConf solution and in Section B the PMWRS solution where the terminal allocates a temporary address to itself and checks for duplicity by checking with neighboring nodes. This is reiterated in item 4 of Section B on page 1060. Both ZeroConf and PMWRS solution are ideal in one-hop networks. Prakash'IEEE discusses a solution for a multi-hop network in Section V on page 1062. In part A of Section V Prakash'IEEE shows that the first node can assign an IP address to itself if it is the first in the network and in part B of Section V Prakash'IEEE shows the initiator node j assigns IP address x to new node l joining the MANET) (b) determining whether the tentative IP address can be used by the terminal (Prakash'IEEE shows on page 1062 in Section V, part B, 2nd column, first two paragraphs checking tentative ip address x can be used by node i); (c) comparing the tentative IP address with at least one other IP address (Prakash'IEEE shows on page 1062 in Section V, part B, 2nd column, first two paragraphs checking tentative ip address x is not found in Allocated and Allocated_Pending of each node k including node j); (d) if the tentative IP address has a duplicate, selecting an advisory IP address that does not exist (Prakash'IEEE shows on page 1062 in Section V, part B, 2nd column, third paragraph if tentative ip address x has a duplicate the initiator, node j, selects an advisory IP x'); (e) sending the advisory IP address to the terminal (Prakash'IEEE shows on page 1062 in Section V, part B, 2nd column, third paragraph if tentative ip address x has a duplicate the initiator, node j, selects an advisory IP x'. After the initiator determines the advisory ip, x', has no duplicate

it assigns it to the requestor node i) (f) performing step (b) using the advisory IP address as the tentative IP address (Prakash'IEEE shows on page 1062 in Section V, part B, 2nd column, third paragraph if tentative IP address x has a duplicate the initiator, node j, selects an advisory IP x'. After the initiator determines the advisory ip, x', has no duplicate it assigns it to the requestor node i).

Regarding **claim 6**, Prakash'IEEE discloses a method wherein the terminal allocates the tentative IP address to itself. **(See Prakash'IEEE on page 1062 section V part A where the first terminal assigns an IP address to itself. Since Prakash'IEEE's network is a multi-hop network and new requestor node while able to assign IP address to itself due to its inability to reach nodes multi-hops away a well established node in the MANET acts as an initiator as further discussed in part B of Section V).**

Regarding **claim 7**, Prakash'IEEE discloses a method wherein the network environment is an ad-hoc network environment **(See Page 1059, 1st column, Section 1, 1st paragraph – Prakash'IEEE system strictly involves a mobile ad hoc network also referred to as MANET).**

Regarding **claim 8**, Prakash'IEEE discloses a method wherein the network environment has no central server **(no central server is shown or taught by Prakash'IEEE as it is strictly an ad hoc network).**

Regarding **claim 9**, Prakash'IEEE discloses a method, wherein at least one other IP address is located in a duplicate address detection (DAD) table **(Prakash'IEEE shows on page 1062 in Section V, part B, 2nd column, third paragraph if tentative**

ip address x has a duplicate the initiator, node j, selects an advisory IP x'. After the initiator determines the advisory ip, x', has no duplicate it assigns it to the requestor node i. The DAD table is a combination of the Allocated and the Allocate_Pending list shown in the last two bullet items of section B on page 1062).

Regarding **claim10**, Prakash'IEEE discloses a method, wherein the advisory IP address does not exist in the DAD table (**Prakash'IEEE shows on page 1062 in Section V, part B, 2nd column, third paragraph if tentative ip address x has a duplicate the initiator, node j, selects an advisory IP x'. After the initiator determines the advisory ip, x', has no duplicate it assigns it to the requestor node i. The address x' is assigned to the requestor i by the initiator j when it is determined that x' does not exist in any of the DAD table of each of the valid nodes in the MANET. The DAD table is a combination of the Allocated and the Allocate_Pending list shown in the last two bullet items of section B on page 1062).**

Regarding **claim 11**, Prakash'IEEE discloses a method wherein a neighboring mobile terminal selects the advisory IP address. (**Prakash'IEEE shows on page 1062 in Section V, part B, 2nd column, third paragraph if tentative ip address x has a duplicate the neighboring initiator node, node j, selects an advisory IP x').**

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gloe (US Pub. No. 20040083306) in view of Prakash et al (Ravi Prakash, Sanket Nesargi, "MANETconf: Configuration of Hosts in a Mobile Ad Hoc Network", IEEE, 2002).

Regarding **claim 1**, Gloe'306 discloses a method of allocating an Internet Protocol (IP) address and detecting duplication of the IP address in a network environment (**See Figures 2, 6, and 7 – the actual network is shown in Figure 2 and the flow chart for detecting the duplicate IP address is shown in Figures 6 and 7**), comprising the steps of: allocating an initial IP address to a terminal (**See Figure 6, element 603 and Figure 7, element 702, and Paragraphs 9 and 37. Note that the terminals are self configuring and generate IP address as indicated in paragraph 37. Namely host nodes 203 are self-configuring nodes which generate their own IP addresses.**); sending and receiving broadcast messages (**In Paragraph 31, Gloe'306 discloses messages in Figure 2, network 204 messages are broadcast.**); detecting duplication of the IP address while sending and receiving the broadcast messages (**Figure 7, step 704 and Paragraph 56 and Paragraph 169 and section 5.4. Specifically Gloe'306 teaches searching for duplicate IP address in the LAN 204 of Figure 2.**); updating a Duplicate Address Detection (DAD) table through

searches of at least one of a DAD table and a history table (See Figures 4 and 5 showing the details of the DNS server and the local host node. Further in paragraphs 56 and 57 Gloe'306 conducts duplicate address check and then in paragraph 58 discloses generating a unique IP id and the host node element 525 of Figure 5 updating the DNS server of Figure 4 in elements 404 and 405 that contains the collection of IP addresses that make up the DAD table. Gloe'306 further reiterates this fact in paragraph 65. Note that the Applicant did not claim the location of the DAD table. Further the DAD table can be assumed to even exist at the local host node as it has to contain some form of a table with its own unique IP address. The claim limitation is adequately met as the limitation is worded such that one of the tables is searched and not the history and DAD tables. See also Paragraphs 41, 87, 92, and 114).

Gloe'306 fails to disclose a method of determining whether a collision of the IP address occurs using a DAD timer handler.

However, the above mentioned claimed limitations are well known in the art as evidenced by Prakash'IEEE. In particular, Prakash'IEEE discloses a method of determining whether a collision of the IP address occurs using a DAD timer handler (Prakash'IEEE's DAD timer is effectively the request_reply_timer indicated on page 1063 in the second column, in Lines 8-10. The request_reply_timer expiration effectively determines potential for collision of IP address. Prakash'IEEE uses the variable request_reply_retry threshold indicated on page 1063, 2nd column, in Lines 20-23 to indicate how many times the

request_reply_timer (i.e. DAD timer) is set to obtain a very accurate list of IP addresses that have collided. The collision in this case is from an IP address already allocated to a departing node that has crashed or failed to communicate its departure from the MANET to other nodes. This mechanism is similar if not identical to what is taught by Applicant in the published specification in paragraph 56 and 57 and described as the restricted period of time, where the variable N corresponds to Prakash'IEEE's request_reply_retry threshold. Also, Prakash'IEEE on page 1062, 1st column, last bullet item indicates a sort of an immediate DAD timer associated with **Allocate_Pending** list.

Based on Applicant's Figure 9 the DAD timer handler simply increments sequence number. Equivalently, Prakash'IEEE teaches after the expiration of the request_reply_timer (i.e. DAD timer) a cleanup message sent to all nodes forcing deletion of the duplicate IP addresses from their respective **Allocated** sets as indicated in 2nd column, in Lines 26-30 on page 1063 and on page 1064 in the 1st column in Lines 17-21 Prakash'IEEE shows that sequence numbers are incremented by one each time an IP address is allocated or relinquished. Please note that history table for each node is taught on page 1064 in the 1st column in Lines 13-17 as well as DAD table as the combination of **Allocated** and **Pending_Allocated** list.).

In view of the above, having the method of Glee'306 and then given the well established teaching of Prakash'IEEE, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of

Gloe'306 as taught by Prakash'IEEE, since Prakash'IEEE clearly states on page 1063 in the 2nd column in Lines 8-25 the need to use a timer repetitively to determine accurately duplicate IP addresses while excluding erroneous indication of address conflicts caused by lost messages in the network.

Regarding **claim 2**, the combination of Gloe'306 and Prakash'IEEE discloses a method wherein the network environment is an ad-hoc network environment **(Prakash'IEEE on page 1059, 1st column, in the first paragraph of the introduction describes a mobile ad hoc network known as MANET).**

Regarding **claim 3**, Gloe'306 discloses a method wherein the terminal allocates the initial IP address to itself **(See Figure 6, element 603 and Figure 7, element 702, and Paragraphs 9 and 37. Note that the terminals are self-configuring and generate IP address. Prakash'IEEE also teaches self configuration in a single Hop network as indicated on page 1060 Section A and as well as item 3 in Section B and in the last paragraph in the 1st column of page 1061).**

Regarding **claim 4**, Gloe'306 discloses a method, wherein the broadcast messages are one-hop broadcast messages. **(See Paragraph 31 – by definition broadcast messages are one hop and in this case from the router to each host is considered one hop. Prakash'IEEE also distinguishes between one hop MANET verses multi-hop MANETs).**

Response to Arguments

7. Applicant's arguments with respect to claims 1 and 5 have been considered but are moot in view of the new ground(s) of rejection. It is the position of the Examiner that the newly cited prior art, Prakash'IEEE, teaches in one form or shape all of the claimed limitations of the instant Application.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HABTE MERED whose telephone number is (571)272-6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2616

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